

## **ABSTRACT**

The present invention provides various embodiments of a double-resonance-absorption microscope which realizes a super-resolution by using double resonance absorption. In particular, a double-resonance-absorption microscope includes a light source for a pump light of a wavelength  $\lambda_1$  which excites a sample molecule to a first electronic excited state from a ground state, a light source for an erase light of a wavelength  $\lambda_2$  which excites the sample molecule to a second electronic excited state or a higher excited state from the first electronic excited state, and an overlap component for partially overlapping irradiating areas of the pump light and the erase light with each other. An emission area upon deexcitation of the sample molecule to the ground state from the first electronic excited state is partially inhibited by irradiating the pump light and the erase light through the overlap means. On an optical path of the erase light, a spatial filter is provided which has a condenser lens, a collimate lens, and a pinhole therebetween, and performs condensing of the erase light onto the pinhole by the condenser lens and collimating of the erase light passed through the pinhole into a parallel beam by the collimate lens.